ORIGIN AND EARLY FOSSIL RECORD OF SPONGES - A GEOBIOLOGICAL APPROACH. *Memoirs of the Queensland Museum 44: 515. 1999*:- The Porifera are Precambrian active filter feeding metazoans which exhibit a reproductive strategy as known from the Eumetazoa. However, most morphological characters of the sponges differ from those of the Eumetazoa. The defining unique character of Porifera is the possession of aggregates of choanocytes, which demonstrate a phylogenetic relationship with the protozoan taxon Choanoflagellata (Reitner & Mehl, 1996). Sponges have various amounts of symbiotic bacteria (e.g. Reitner, 1993; Schumann-Kindel et al., 1996, 1997)which control metabolic processes. As an hypothesis, sponges originated from biofilms which were associated with choanoflagellates. The first remains of sponges are known from Middle Proterozoic (1.8bya) blackshales (biomarker C30-sterane, 24-isopropylcholestane) (Moldowan et al., 1994; Thiel et al 1999). First spicules and entirely preserved sponge bodies are known from the Late Proterozoic (Ediacaran, various microbialite reefs) (Steiner et al., 1993; Gehling & Rigby, 1996). In the early Cambrian all main groups of sponges were known to exist, including the Calcarea (Reitner & Mehl, 1995). During the Phanerozoic six major sponge events are noticed. The first one is represented by the development of the Archaeocyaths in the Lower Cambrian. The occurrence of typical stromatoporoids started in the Ordovician. Rigid hexactinellids are known since the Late Devonian. First modern demosponge taxa occurred after the Late Devonian extinction event. Modern types of coralline sponges, e.g. Ceratoporellida, occured in the Permian, and have an optimum diversity in the Late Triassic. The last significant development is seen in the Jurassic - starting point of the fresh water sponges - when some marine taxa (Haploscerlida: Poecilosclerida: ?Hadromerida) moved into fresh water environments. Sponges were important in reef buildung, and many are still specialised reef dwelling organisms. Their importance as main reef buildung organisms decreased in the Late Jurassic - Lower Cretaccous, when fast growing modern zooxanthellate corals became more important. ❐ *Porifera, symbionts, reef-building sponges, fossil sponges.*

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